CLAIMS

What is claimed is:

1. A portable monitor system for measuring kinematics of at least one object comprising:
a light source having a primary emission wavelength; and
a light receiver comprising a filter having a primary transmission wavelength, wherein the at least one object has at least one fluorescent marker with a primary reflectance wavelength.

2. The monitor system of claim 1, wherein the primary emission wavelength is at least 10nm different than the primary transmission wavelength.

3. The monitor system of claim 2, wherein the light source comprises a low pass filter.

4. The monitor system of claim 3, wherein the low pass filter has a cut off wavelength of about 580 nm or less and has a transmission of about 60 percent or greater.

5. The monitor system of claim 1, wherein the light source has an emission spectrum center wavelength from about 400 nm to about 800 nm.

6. The monitor system of claim 1, wherein the primary transmission wavelength is from about 400 nm to about 800 nm.

7. The monitor system of claim 6, wherein the filter is a band pass filter.

8. The monitor system of claim 7, wherein the band pass filter has a center wavelength about 600 nm and a bandwidth of about 40 nm or less.

9. The monitor system of claim 6, wherein the filter is an electronically switchable filter.

10. The monitor system of claim 6, wherein a light leaving the filter has a center frequency of about 560 nm to about 640 nm.

11. The monitor system of claim 1, wherein the light source comprises at least one strobe light.

12. The monitor system of claim 11, wherein the at least one strobe light comprises light emitting diodes.

13. The monitor system of claim 1, further comprising at least one other object having at least one marker thereon, wherein the at least one marker differs in reflective wavelength, size, orientation, or shape from the at least one fluorescent marker.

14. The monitor system of claim 13, wherein the at least one object is a golf ball.

15. The monitor system of claim 1, wherein the at least one fluorescent marker comprises an orange-fluorescent pigment.

16. The monitor system of claim 1, further comprising a central processing unit, wherein the system weighs about 50 pounds or less.

17. The monitor system of claim 1, further comprising a battery power source, wherein the system weighs about 50 pounds or less.

18. A portable monitor system for measuring kinematics of at least two objects comprising:
a light source;
a first camera; and
a second camera,
wherein one object has at least one fluorescent marker thereon and another object has at least one marker thereon.

19. The monitor system of claim 18, wherein the at least one marker differs from the at least one fluorescent marker by having at least one of a different shape,

orientation, type, size, peak optical reflective wavelength, or any combination thereof.

20. The monitor system of claim 18, wherein the light source comprises a filter having a cut off wavelength of about 580 nm or less and has a transmission of about 60 percent or greater.

21. The monitor system of claim 20, wherein a first light leaving the light source filter has a center frequency from about 400 nm to about 800 nm.

22. The monitor system of claim 18, wherein the first and second cameras each comprise at least one filter.

23. The monitor system of claim 22, wherein the at least one filter is a band pass filter having a center wavelength from about 580 nm to about 620 nm and a bandwidth of about 40 nm or less.

24. The monitor system of claim 22, wherein a second light leaving the at least one filter has a center wavelength from about 560 nm to about 640 nm.

25. The monitor system of claim 22, wherein the at least one filter is electronically switchable.

26. The monitor system of claim 18, wherein the light source comprises at least one strobe light.

27. The monitor system of claim 18, wherein one object is a golf ball and another object is a golf club.

28. A method of measuring the kinematics of at least one object comprising:
providing a first object having at least one fluorescent marker thereon;
directing a first light towards a field-of-view comprising the first object, wherein the first light contacts the at least one fluorescent marker and is reflected as a second light to a light receiving unit, and wherein the second light comprises an image of the first object;

recording the image of the first object; and

analyzing the recorded image of the first object for a first bright area, wherein the first bright area corresponds to the at least one fluorescent marker.

29. The method of claim 28, wherein the light receiving unit comprises at least one filter and at least one camera unit.

30. The method of claim 28, wherein the light receiving unit comprises a first camera with a first camera filter and a second camera with a second camera filter.

31. The method of claim 29, wherein the at least one filter has a center frequency from about 580 nm to about 620 nm and a bandwidth of about 40 nm or less.

32. The method of claim 28, wherein the step of directing a first light further comprises filtering the first light with a filter prior to contacting the at least one fluorescent marker, and wherein the filter has a cut off frequency of about 580 nm or less and has a transmission frequency of about 60 percent or greater.

33. The method of claim 32, wherein the first light leaves the filter with a center frequency from about 400 nm to about 500 nm.

34. The method of claim 28, further comprising the steps of:

providing a second object having at least one marker thereon, wherein the field-of view further comprises the second object, and wherein the second light further comprises an image of the second object;

recording the image of the second object; and

analyzing the recorded image of the second object for a second bright area, wherein the second bright area corresponds to the at least one marker.

35. The method of claim 34, wherein the at least one marker differs from the at least one fluorescent marker by having at least one of a different shape, orientation, type, size, peak optical reflective wavelength, or any combination thereof.